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09/855,485	05/14/2001	Shin-Yee Lu	3521.152	9749

7590

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EXAMINER

DO, ANH HONG

ART UNIT

PAPER NUMBER

2624

DATE MAILED: 05/06/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

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# Office Action Summary

Application No.

09/855,485

Applicant(s)

LU, SHIN-YEE

Examiner

ANH H DO

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 and 9 is/are allowed.
- 6) ☒ Claim(s) 1, 11, 13, 14 and 16 is/are rejected.
- 7) ☒ Claim(s) 2-7, 10, 12 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 1 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claims 1 and 16 recite the limitation "said step d)" in line 17 (claim 1) and line 14 (claim 16). There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 11, 13, and 14 are rejected under 35 U.S.C. 102(a) as being anticipated by Brown et al. (U.S. Patent No. 5,621,813).

Regarding claims 11 and 14, Brown discloses:

a) forming a virtual alignment pattern from a data base of primitive shapes and storing the virtual alignment pattern in a memory unit (col. 12, lines 12-17:  
forming a first alignment image of a first region of the reticle defining a first key

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pattern, which corresponds to the claimed virtual alignment pattern from a data base of primitive shapes, and a memory for storing it);

b) comparing first and second images of alignment patterns formed on first and second levels of a substrate to said virtual alignment pattern (col. 12, lines 24-26: computing positions of said first key pattern and a target pattern, corresponding to comparing the images of the alignment pattern to the virtual alignment pattern);

c) computing an offset between the first and second images of the alignment pattern (col. 12, lines 26-18: computing the position difference to determine the deviation between the substrate and a reference position, in response to the position of the first key pattern).

Regarding claim 13, Brown teaches performing pattern recognition (col. 12, lines 18-23: recognition system for performing pattern recognition).

***Allowable Subject Matter***

6. Claims 8 and 9 are allowed.

7. Claims 1 and 16 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

8. Claim 2-7, 10, 12, and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 1 and 16, the prior art, either taken singly or in combination, does not teach:

- imaging with the optical machine, using first and second exposures, first and second metropolity patterns on the substrate at the first and second levels, respectively, in an overlaid manner, by aligning the second exposure to the first exposure using the zero-offset alignment patterns, said first and second metropolity patterns based on the virtual zero-offset alignment metropolity patterns.

Regarding claims 2-6, the prior art, either taken singly or in combination, does not teach:

- forming the virtual zero-offset alignment pattern by combining one or more shape primitives from a set of shape primitives.

Regarding claim 7, the prior art, either taken singly or in combination, does not teach:

- performing alignment for a plurality jobs to be performed, further including the step of creating zero-offset alignment patterns for each job.

Regarding claim 8 and 9, the prior art, either taken singly or in combination, does not teach:

- a computer system having pattern recognition software stored therein and a memory unit containing one or more virtual zero-offset alignment patterns accessible to said pattern recognition software, at least one of said one or more

virtual zero-offset alignment patterns corresponding to the first and second metropol patterns; and at least one of said one or more zero-offset alignment patterns corresponding to the first and second alignment patterns.

Regarding claim 10, the prior art, either taken singly or in combination, does not teach:

- processing wafers on any machine in the set of machines without measuring an offset for any machine in the set of machines that depends on the job.

Regarding claims 12 and 15, the prior art, either taken singly or in combination, does not teach:

- generating a bit-map image of a zero-offset alignment pattern; and
- creating a simulated optical image of the bit-map image.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANH H DO whose telephone number is 703-308-6720. The examiner can normally be reached on 5/4-9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID K MOORE can be reached on 703-308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 3, 2004.



**ANH HONG DO**  
**PRIMARY EXAMINER**